

USDA Oregon Technical Advisory Committee

February 16, 2017

NRCS hydrologists sample low elevation snow in the Owyhee Basin where mountain snowpack has already surpassed its normal annual peak.



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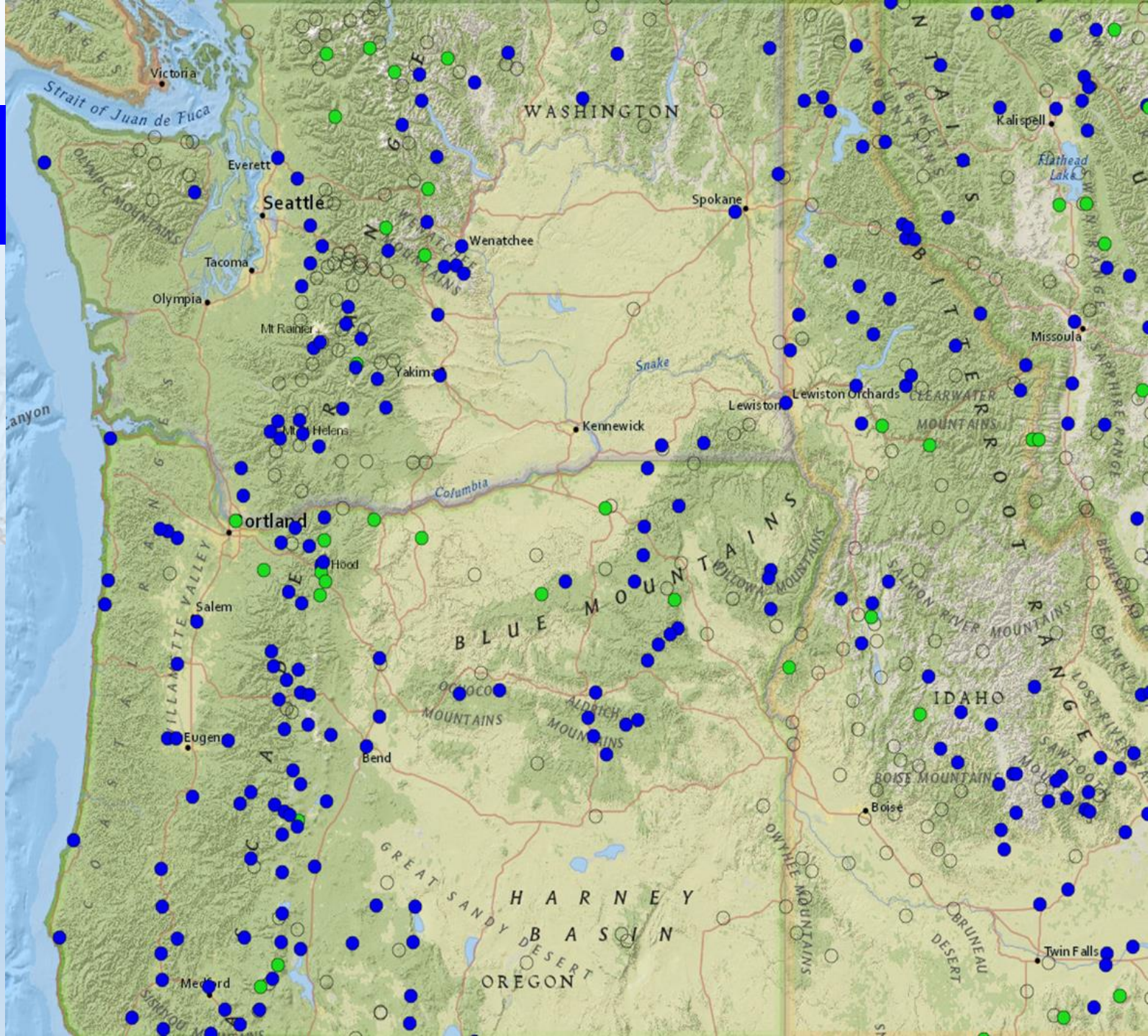
Oregon 2017 Water Supply Conditions Update

- **Overview of Water Year Snow and Precipitation**
- **Drought Monitor Status**
- **NOAA Extended Forecasts**
- **Summary of Low Elevation Snowpack in E. Oregon**

Record October Precipitation

1 month Precipitation
Records (1981-2010)
October 1, 2016 through
October 31, 2016

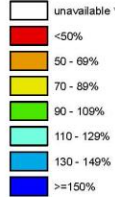
- Highest
- 2nd Highest
- 2nd Lowest
- Lowest



Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Nov 24, 2016

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



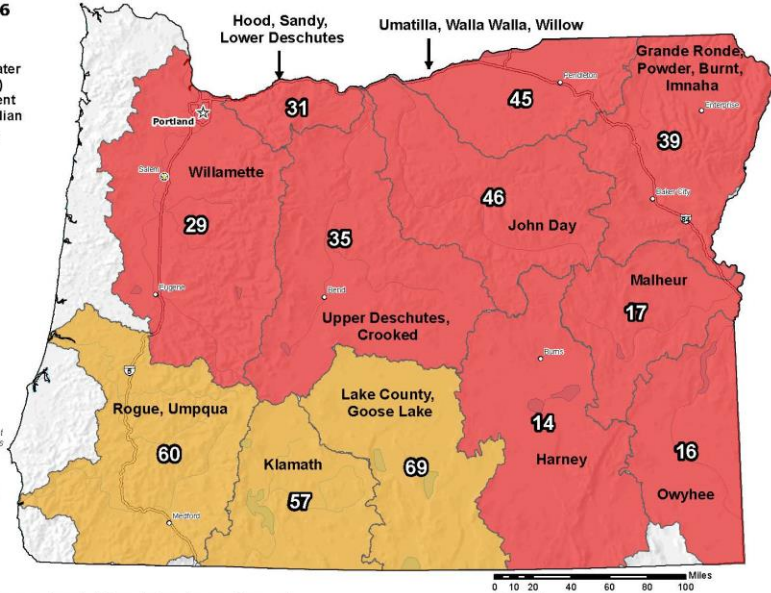
* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
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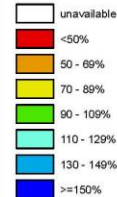
Thanksgiving 2016

December 5, 2016

Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Dec 05, 2016

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



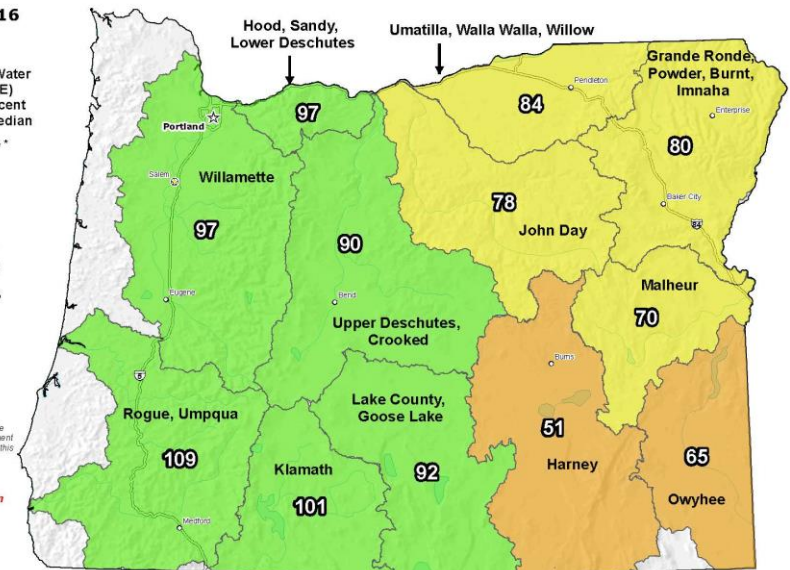
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Provisional Data Subject to Revision



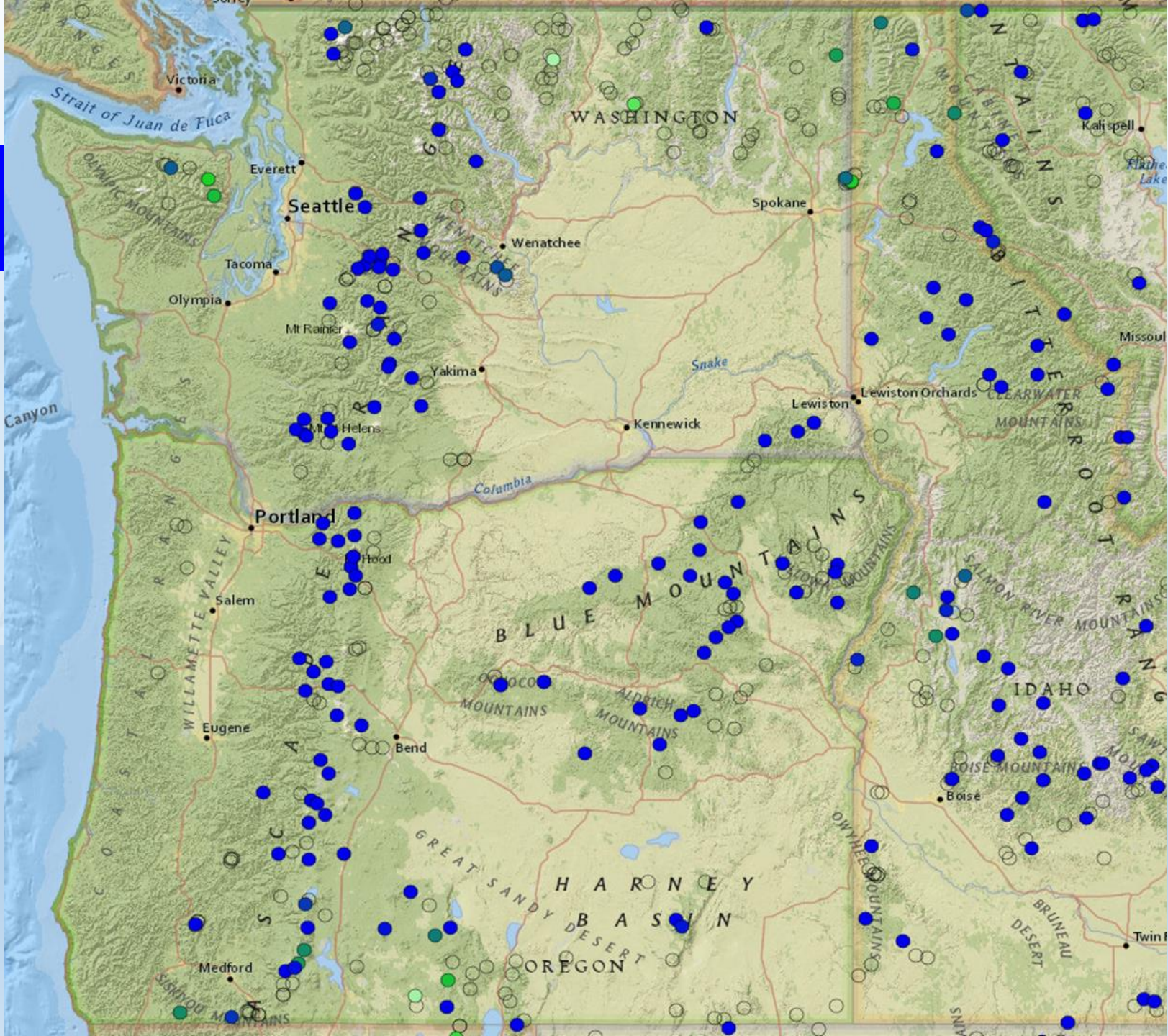
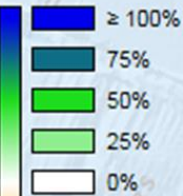
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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**December
SWE
Accumulation**

Snow Water Equivalent
Delta
Percent NRCS 1981-2010
Median
End of December, 2016
minus
End of November, 2016

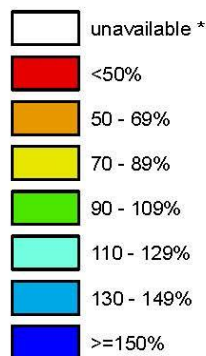


January 1, 2017 Snowpack

Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

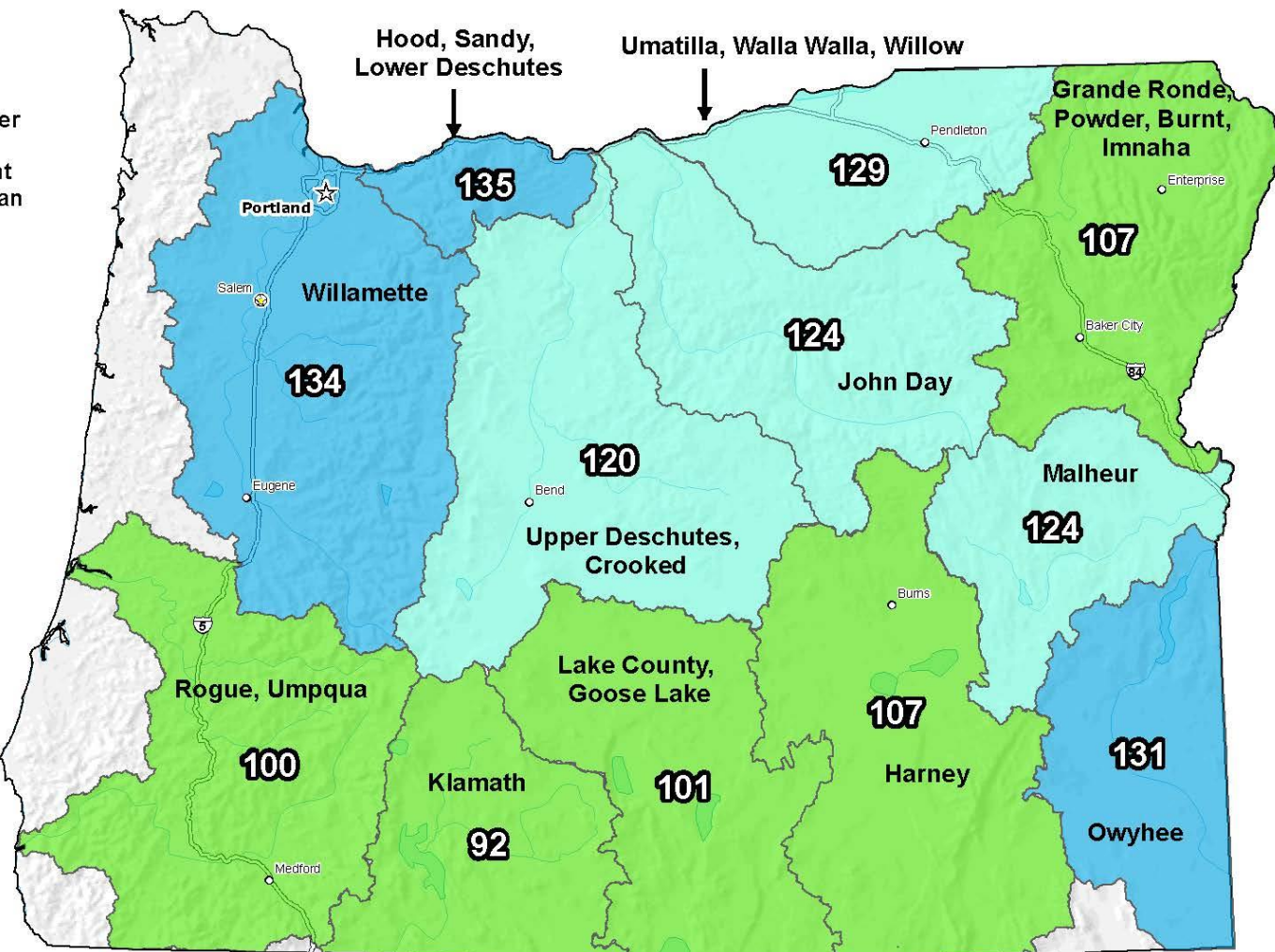
Jan 01, 2017

Current Snow Water Equivalent (SWE)
Basin-wide Percent
of 1981-2010 Median



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**Provisional Data
Subject to Revision**



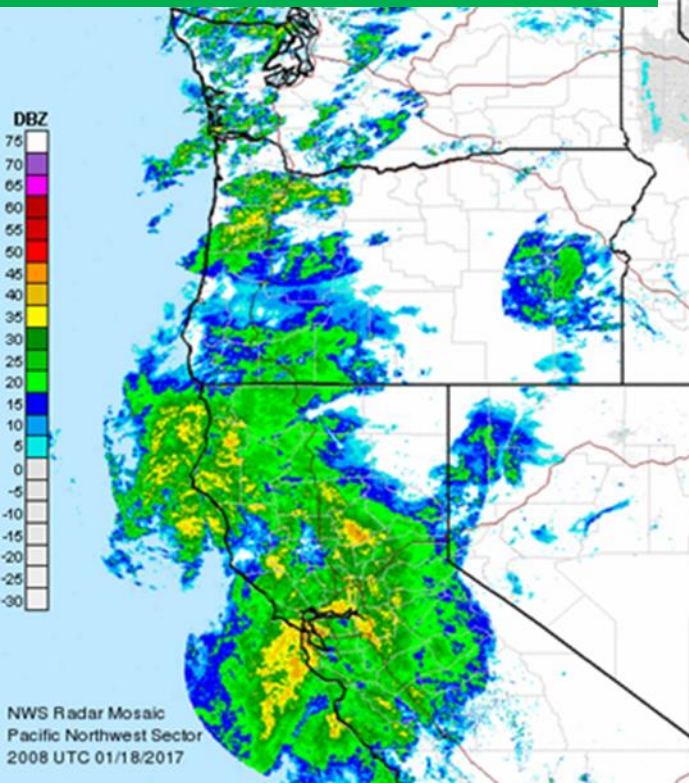
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

Prepared by:
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January Precipitation Pattern

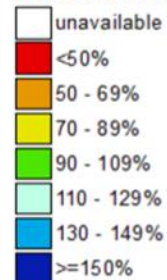
Radar image from NWS on Jan 18, 2017



Storm Track Focused
on SW Corner of State

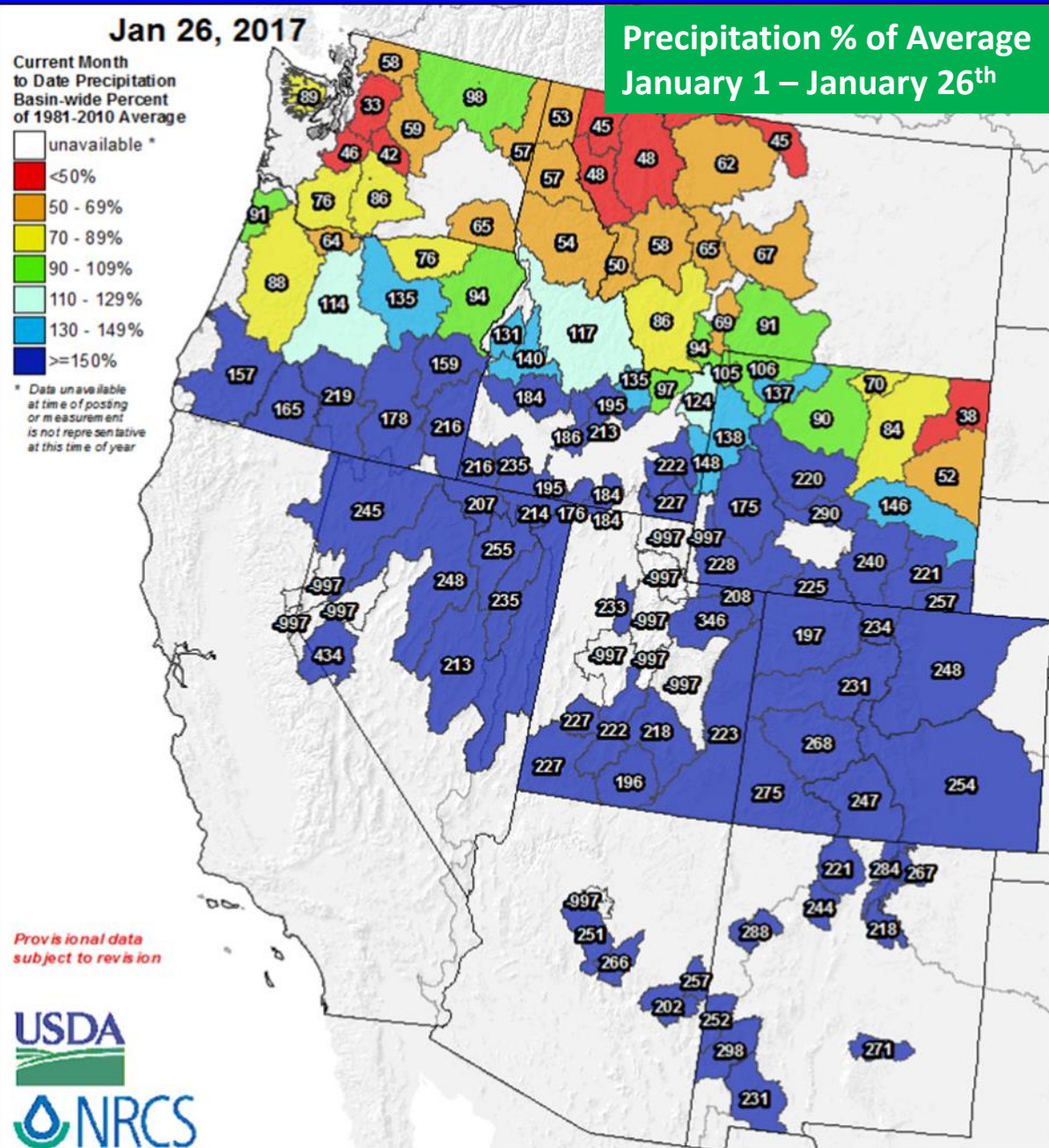
Jan 26, 2017

Current Month
to Date Precipitation
Basin-wide Percent
of 1981-2010 Average



* Data unavailable
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or measurement
is not representative
at this time of year

Precipitation % of Average
January 1 – January 26th

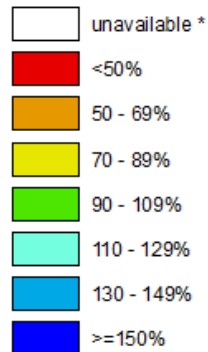


February 16, 2017 Snowpack

Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

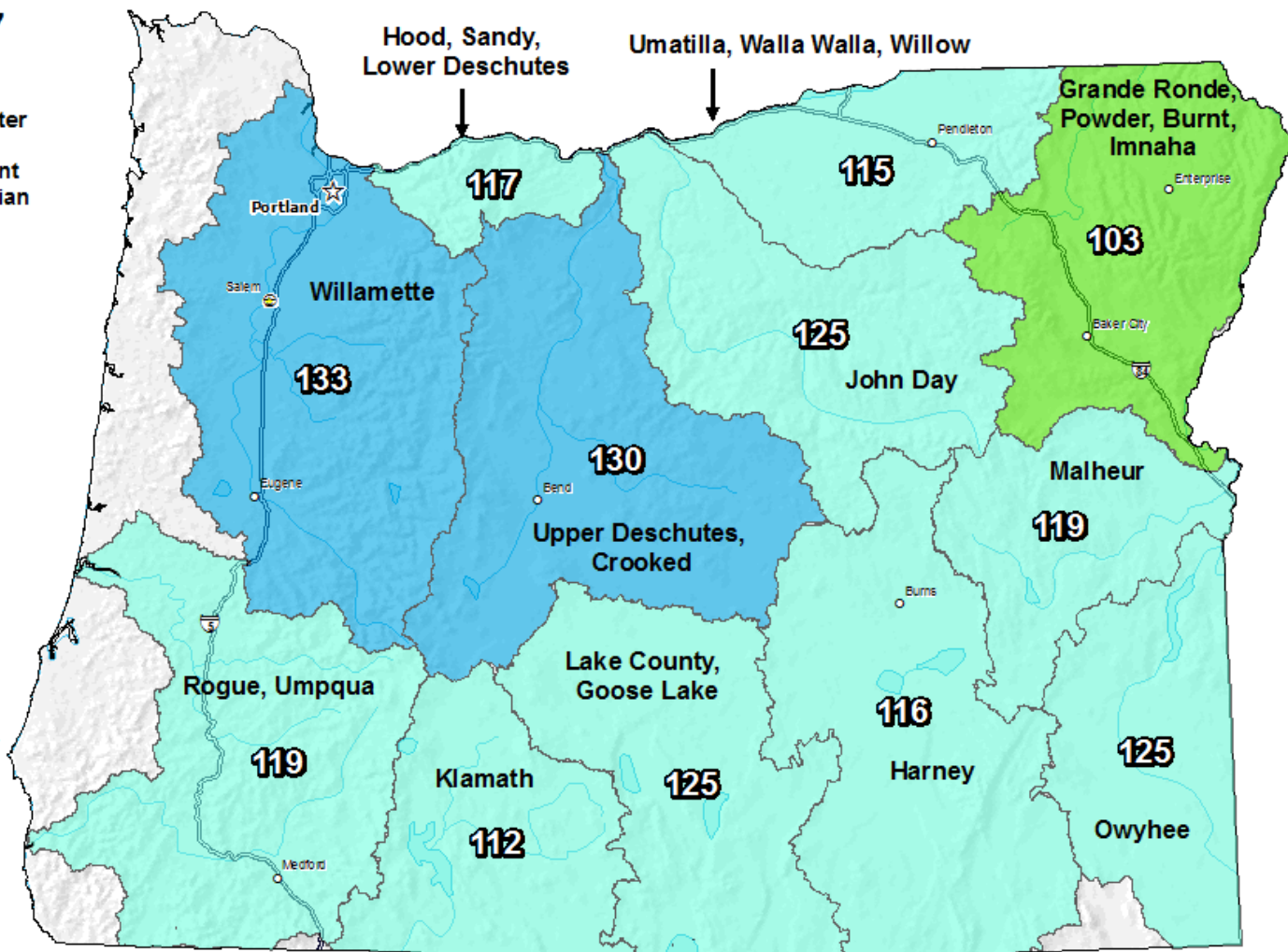
Feb 16, 2017

Current Snow Water Equivalent (SWE)
Basin-wide Percent
of 1981-2010 Median



* Data unavailable at time
of posting or measurement
is not representative at this
time of year

Provisional Data
Subject to Revision

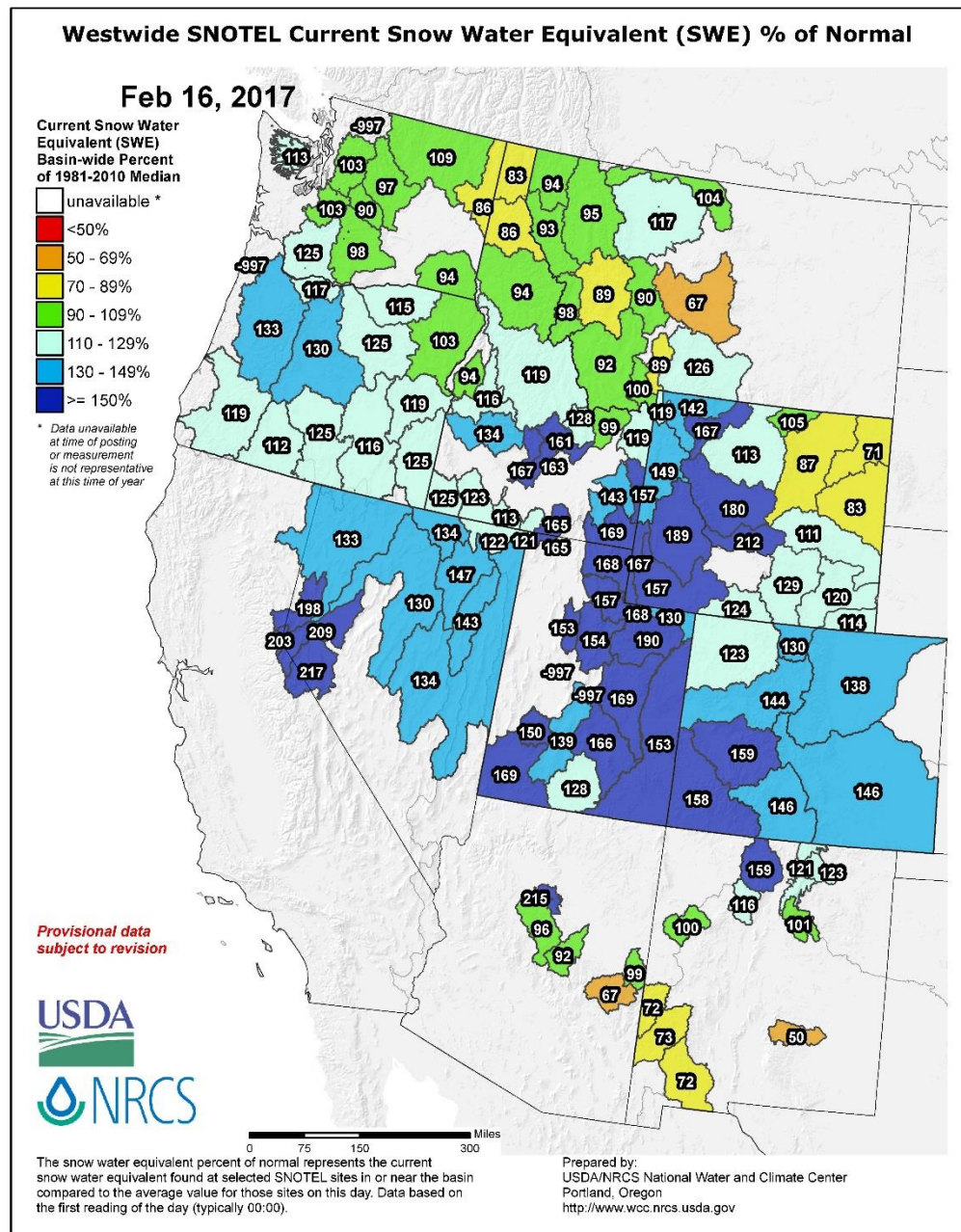


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

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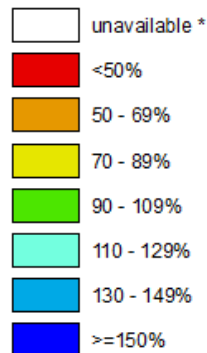
West-Wide Snowpack – February 16, 2017



February 16, 2017 Water Year Precipitation

Feb 16, 2017

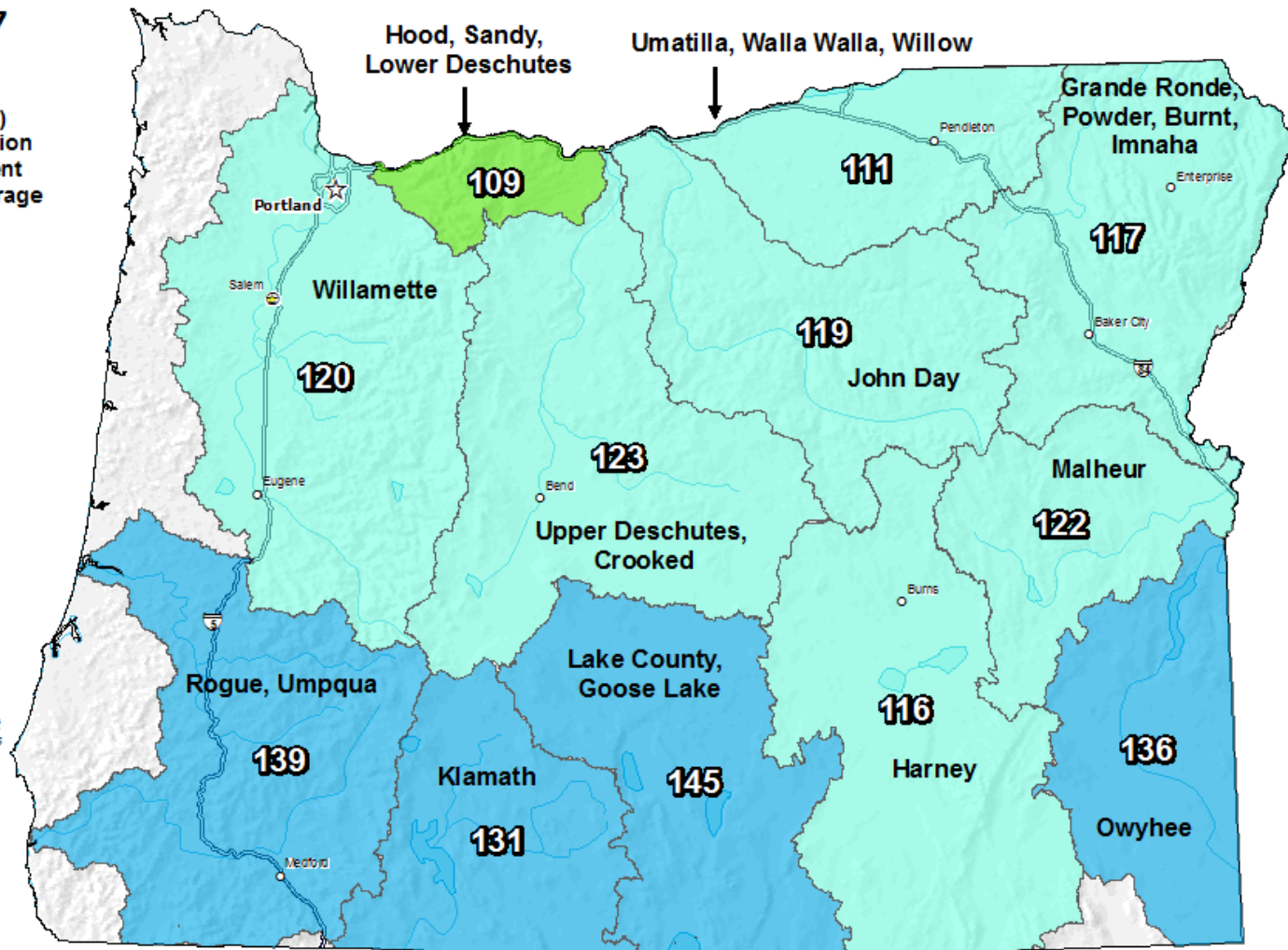
Water Year (Oct 1)
to Date Precipitation
Basin-wide Percent
of 1981-2010 Average



* Data unavailable at time
of posting or measurement
is not representative at this
time of year

*Provisional Data
Subject to Revision*

Oregon SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal



The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

0 10 20 40 60 80 100 Miles

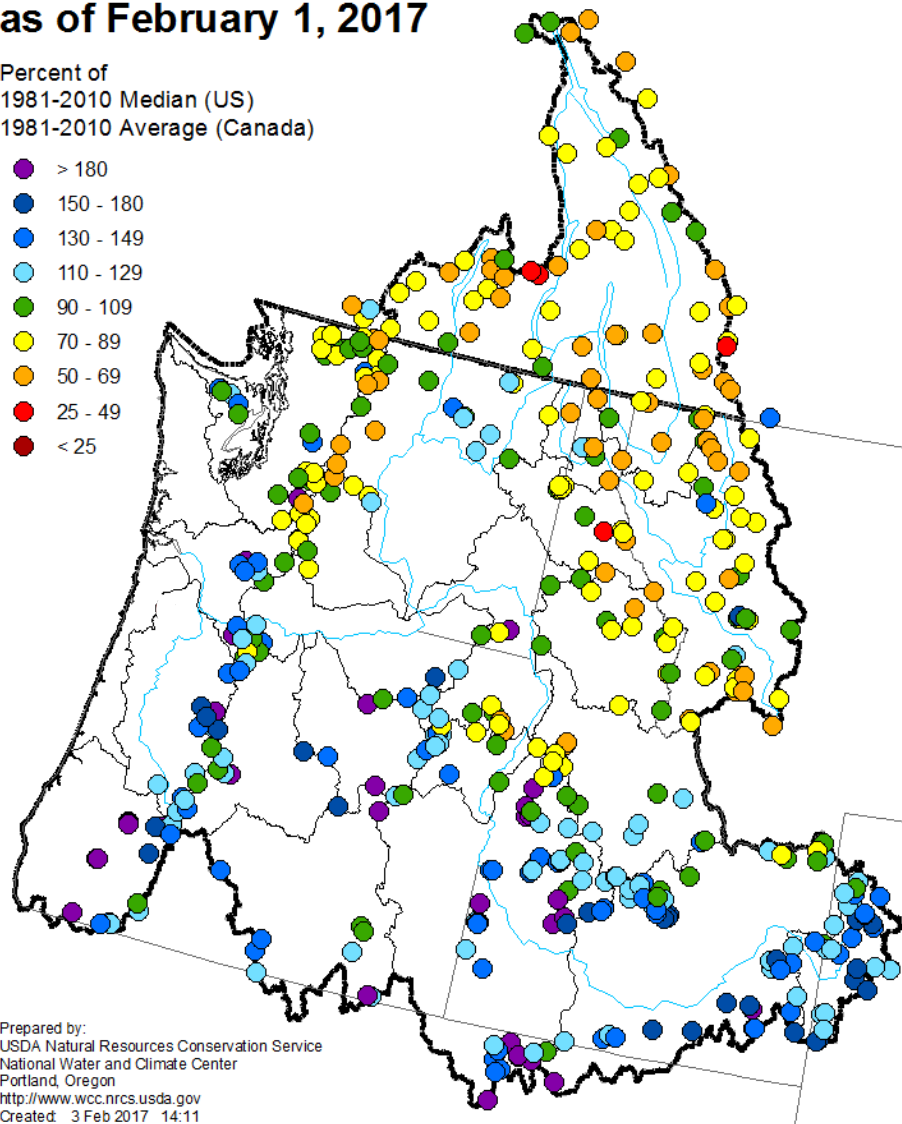
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
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February 1, 2017 – Streamflow Volume Forecasts 50% Probability

Columbia River and Pacific Coastal Basins Mountain Snowpack as of February 1, 2017

Percent of
1981-2010 Median (US)
1981-2010 Average (Canada)

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



Prepared by:
USDA Natural Resources Conservation Service
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Created: 3 Feb 2017 14:11

U.S. Drought Monitor Oregon

February 16, 2016

(Released Thursday, Feb. 18, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.58	77.42	67.55	33.96	0.00	0.00
Last Week 2/9/2016	16.88	83.12	74.55	33.96	0.00	0.00
3 Months Ago 11/17/2015	0.00	100.00	98.45	91.57	60.69	0.00
Start of Calendar Year 1/1/2016	14.52	85.48	80.45	65.33	39.55	0.00
Start of Water Year 9/29/2015	0.00	100.00	100.00	100.00	67.29	0.00
One Year Ago 2/17/2015	14.22	85.78	82.29	44.95	33.71	0.00

Intensity:

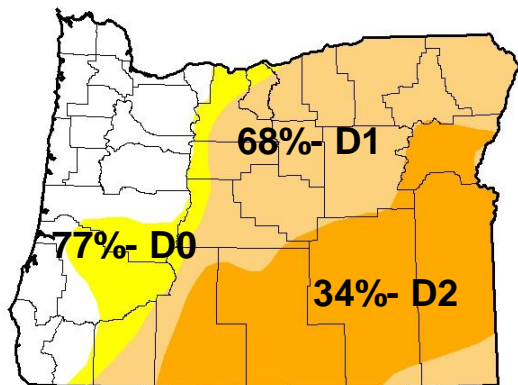
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.

Author:
Eric Luebbehusen
U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>



U.S. Drought Monitor Oregon

October 4, 2016

(Released Thursday, Oct. 6, 2016)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	50.28	12.30	0.00	0.00
Last Week 9/27/2016	0.00	100.00	50.59	12.30	0.00	0.00
3 Months Ago 7/5/2016	0.00	100.00	49.75	0.00	0.00	0.00
Start of Calendar Year 1/1/2016	14.52	85.48	80.45	65.33	39.55	0.00
Start of Water Year 9/27/2015	0.00	100.00	50.59	12.30	0.00	0.00
One Year Ago 10/6/2015	0.00	100.00	100.00	100.00	67.29	0.00

Intensity:

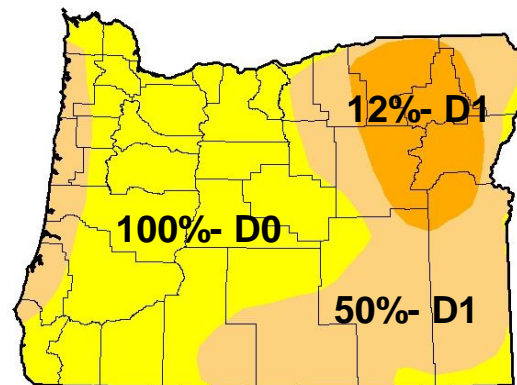
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>



U.S. Drought Monitor Oregon

February 14, 2017

(Released Thursday, Feb. 16, 2017)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	82.99	17.01	2.98	0.00	0.00	0.00
Last Week 2/7/2017	82.99	17.01	2.98	0.00	0.00	0.00
3 Months Ago 11/15/2016	56.44	43.56	23.22	2.63	0.00	0.00
Start of Calendar Year 1/1/2017	65.31	34.69	5.29	0.00	0.00	0.00
Start of Water Year 9/27/2016	0.00	100.00	50.59	12.30	0.00	0.00
One Year Ago 2/16/2016	22.58	77.42	67.55	33.96	0.00	0.00

Intensity:

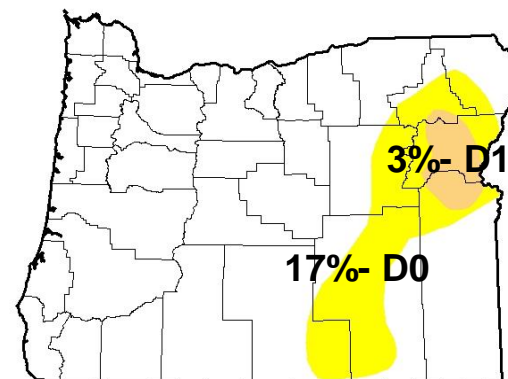
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.

Author:
Jessica Blunden
NCEI/NOAA

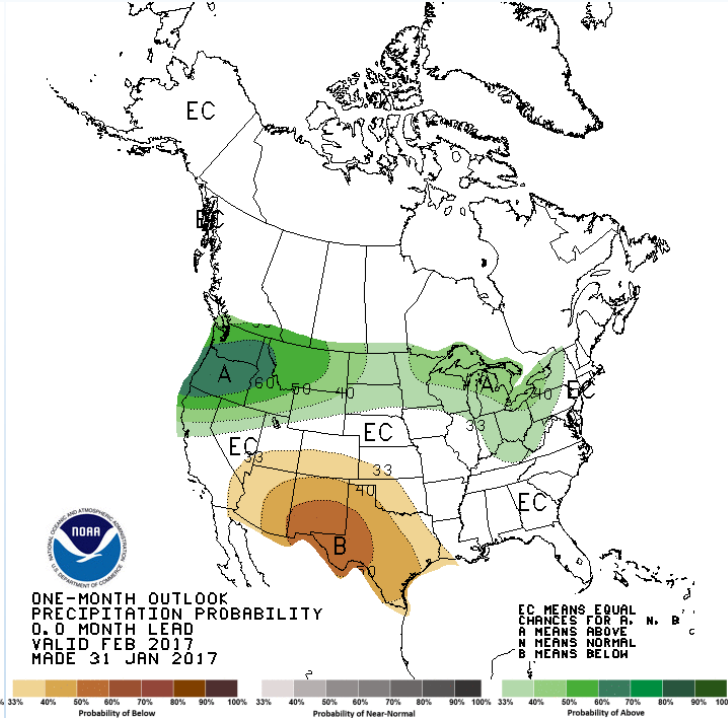
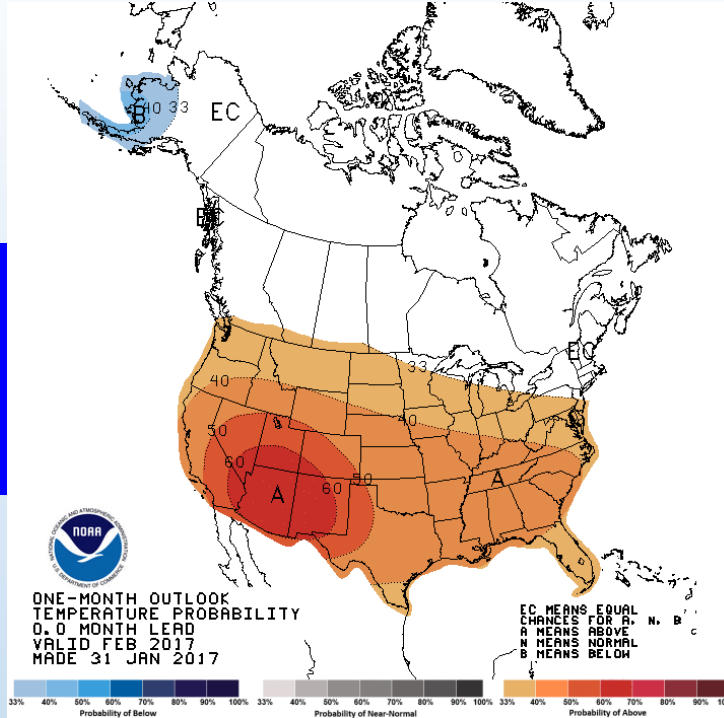


<http://droughtmonitor.unl.edu/>

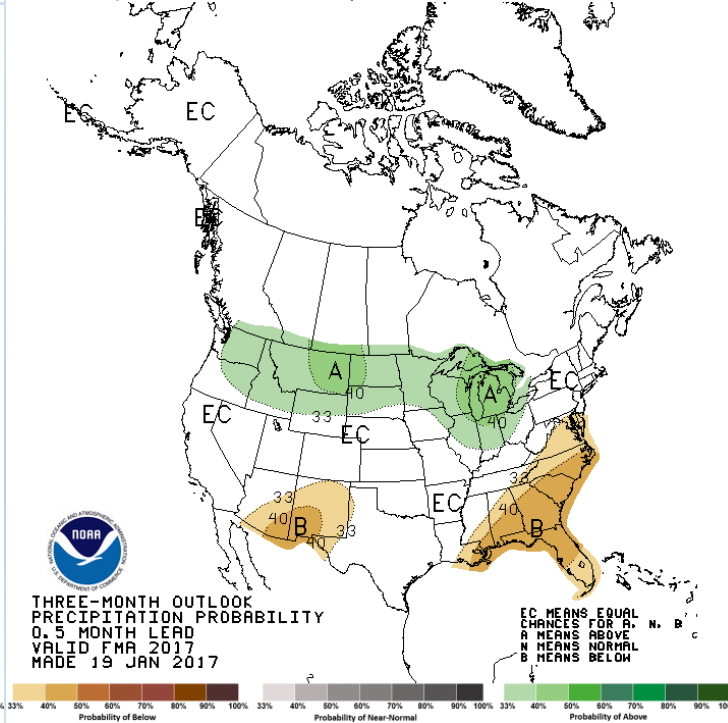
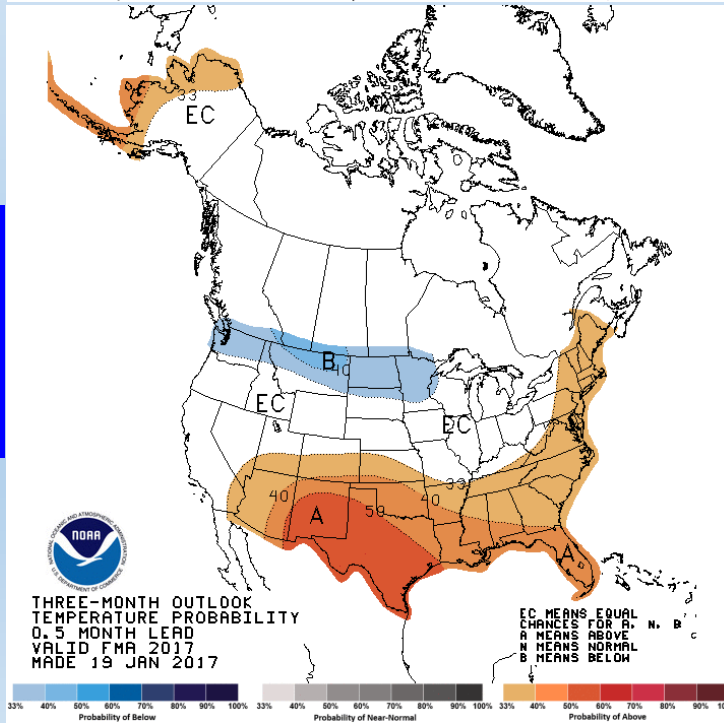


D0 = Abnormally Dry (Yellow)
D1 = Moderate Drought (Tan)
D2 = Severe Drought (Orange)
D3 = Extreme Drought (Red)
D4 = Exceptional Drought (Brown)

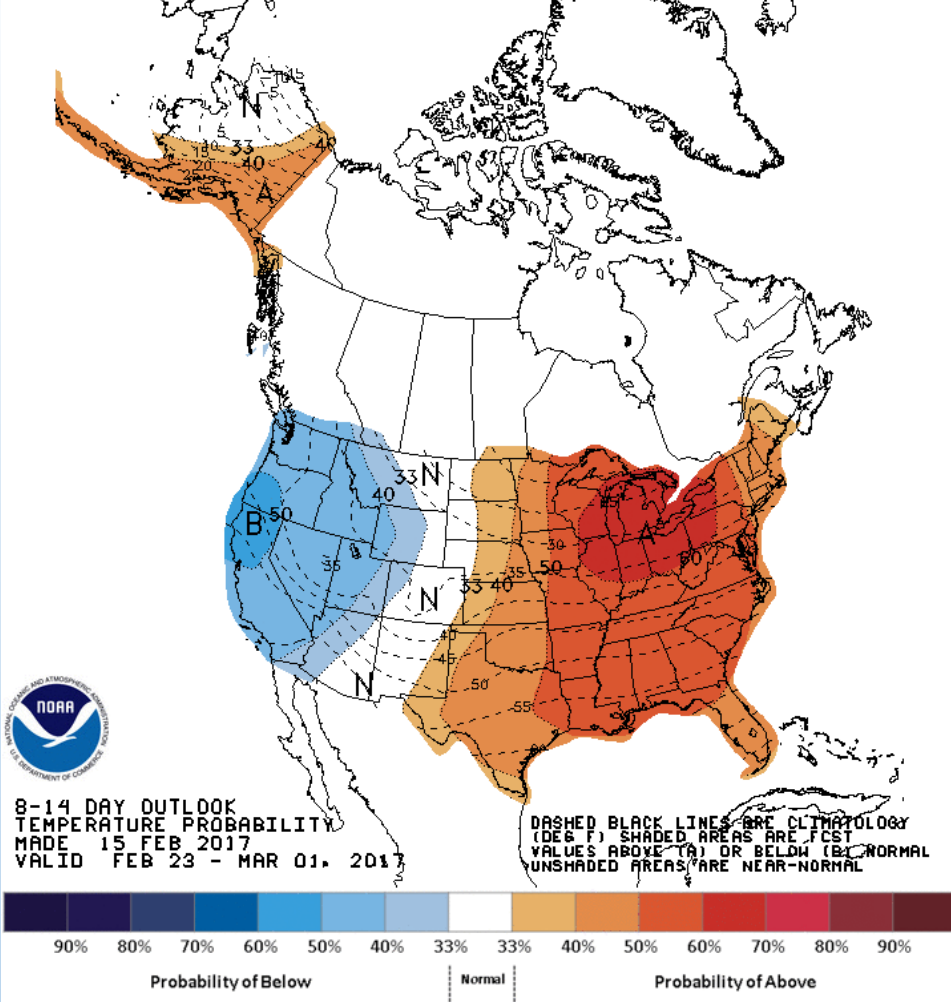
1-Month Forecast February 2017



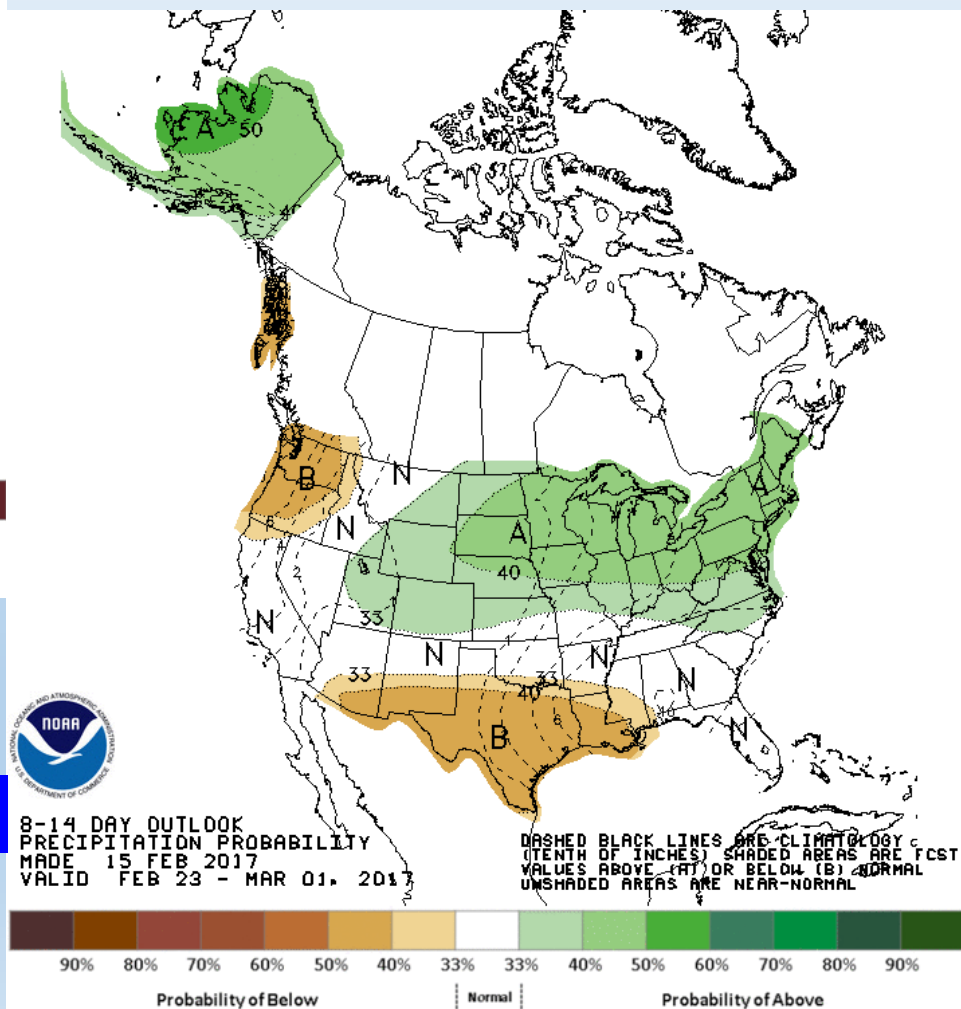
3-Month Forecast F-M-A 2017



8-14 day CPC Temp Forecast



8-14 day CPC Precip Forecast



NRCS staff from Union, Baker, and Malheur Counties met to discuss implications of the low elevation snowpack that has accumulated and remained in place this winter. Concerns of what could transpire if a rapid warming or rain-on-snow event occurred. Field crews mobilized 02/07 – 02/09 to measure snow at certain locations mainly to determine water content and depth.

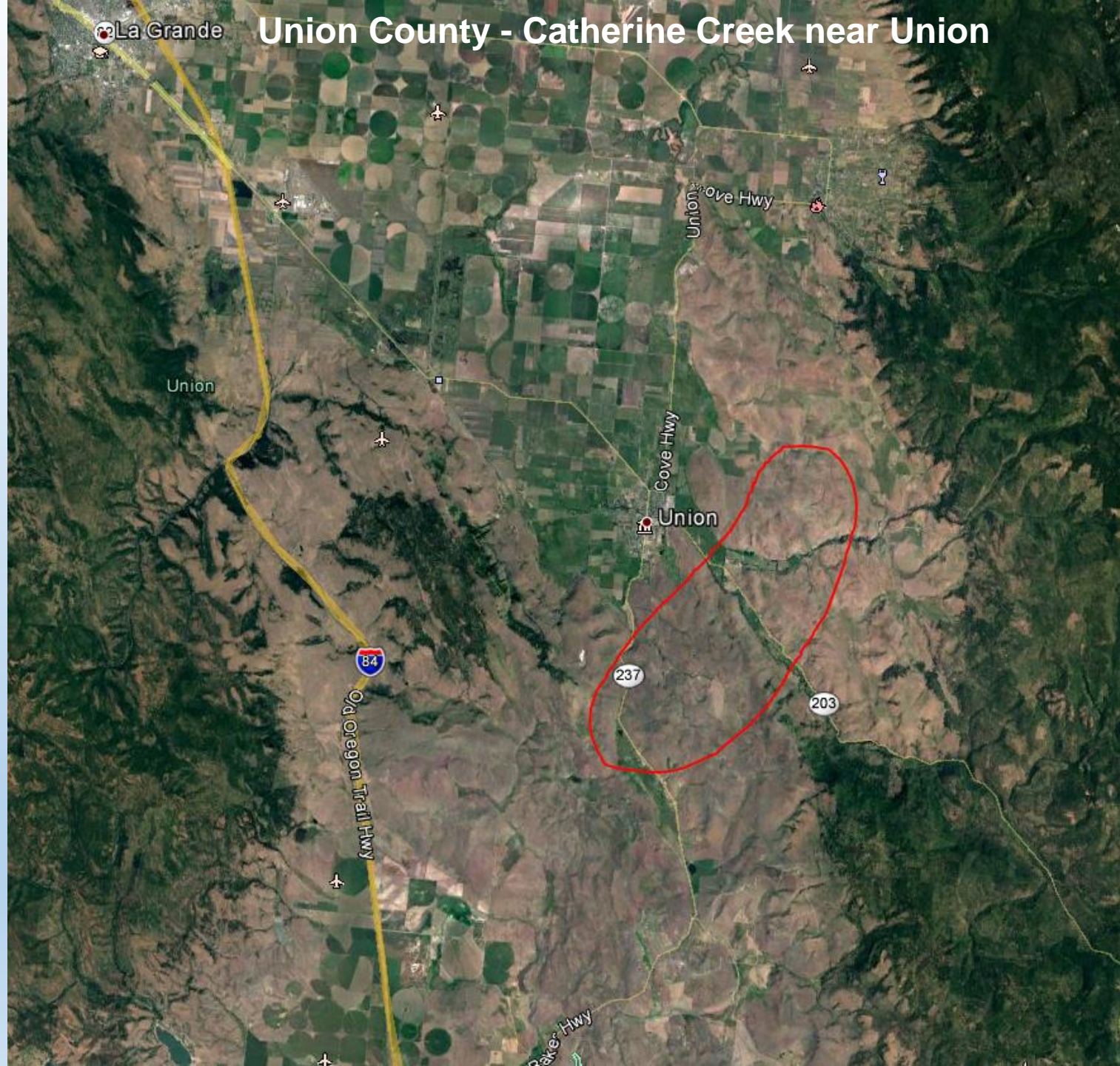
National Weather Service Offices in Pendleton and Boise, as well as local County Emergency Managers, and both were asked:

- 1) Are there certain areas (cross sections of tributaries, areas where NWS has recorded historic flooding, etc.) where we should sample to identify impacts that would assist NWS flood forecasting or predictability?**
- 2) Is there anything else we could identify/measure (photos or other data collection) that would assist your efforts?**

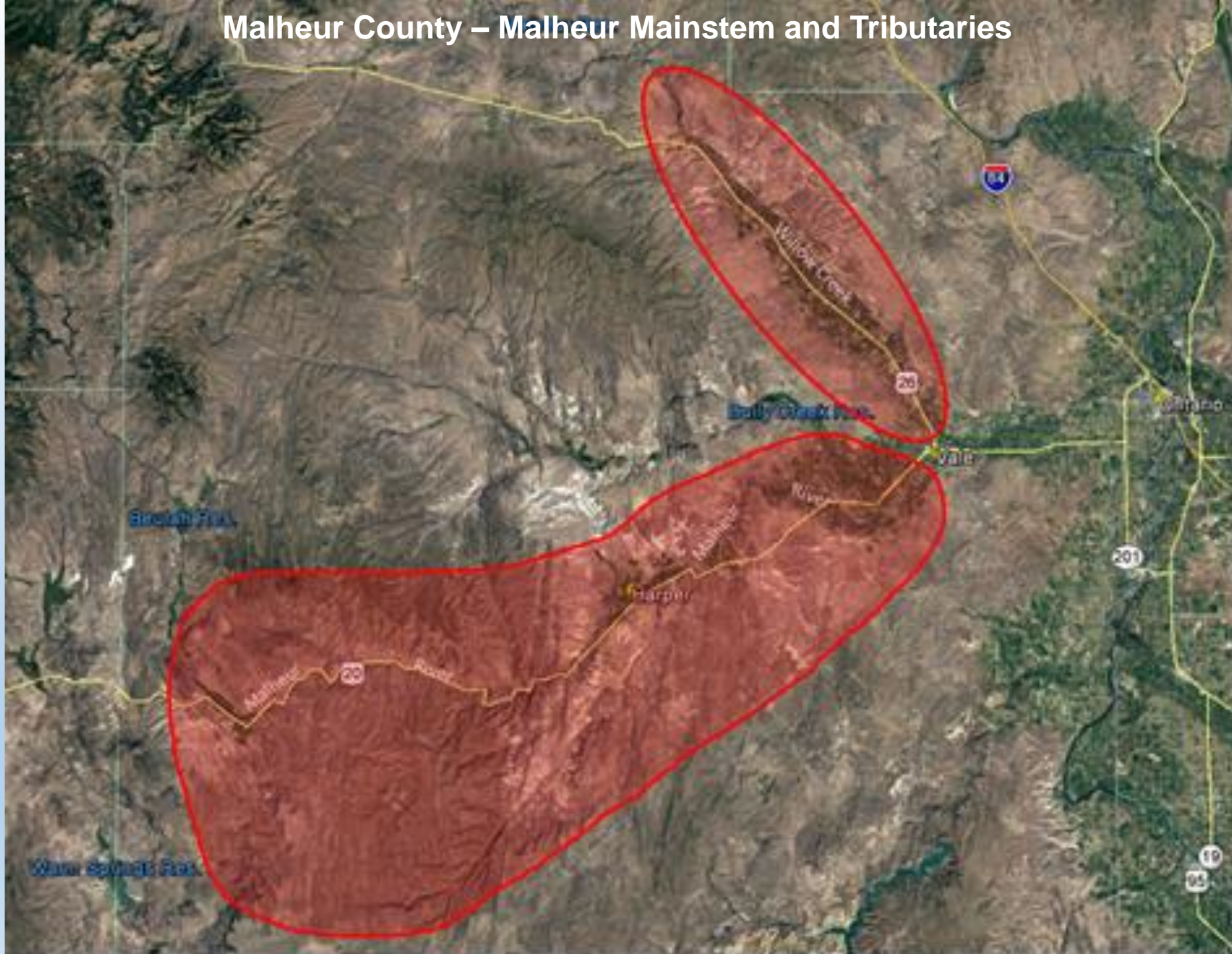
Effort was one-time, quick snapshot of conditions, not meant to be a replication of snow course or SNOTEL monitoring in terms of long-term data records and sampling at pre-specified locations. NWS was pleased and responded immediately with request for specified target areas, including photo documentation of sampled areas.

La Grande

Union County - Catherine Creek near Union



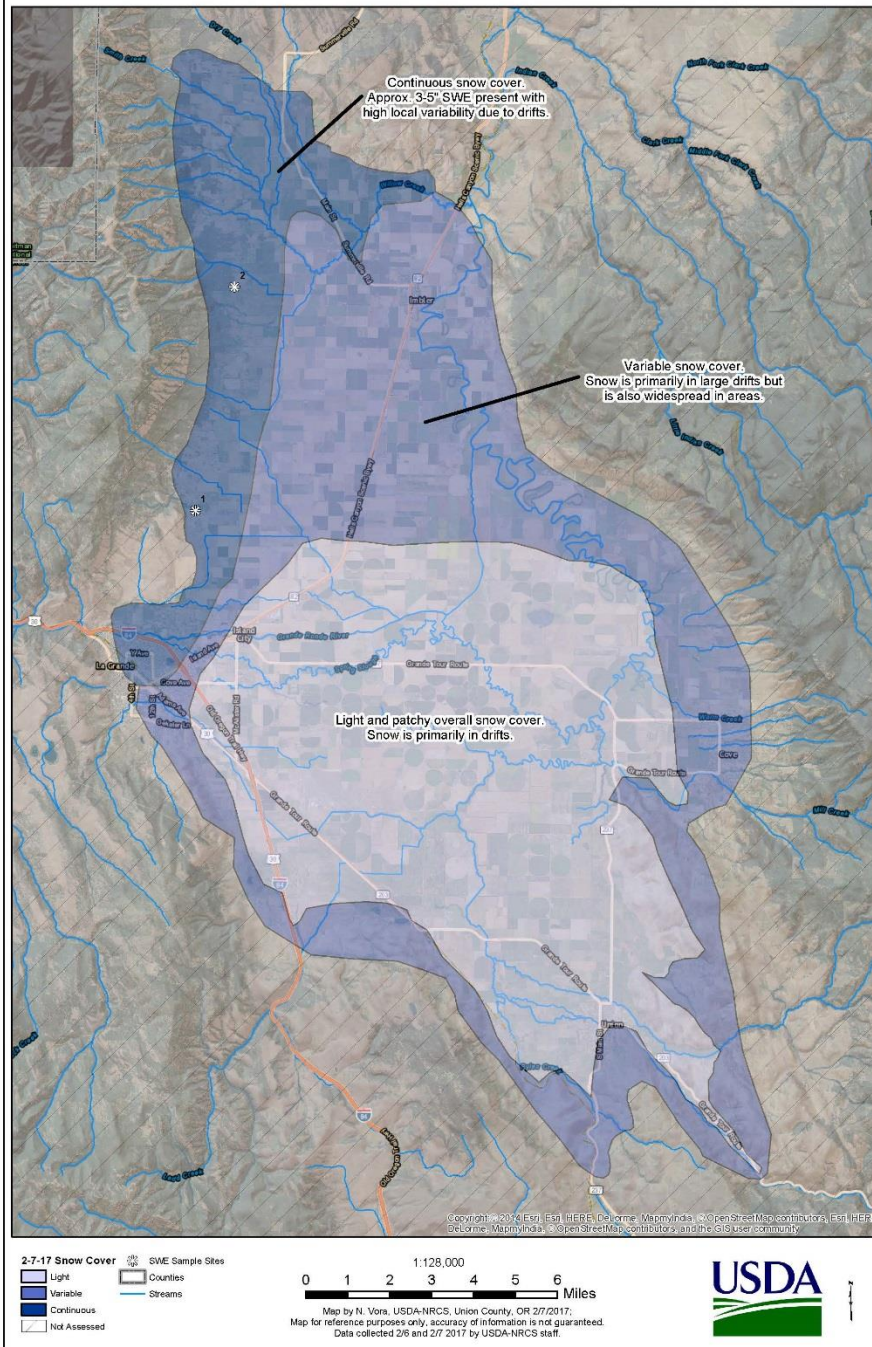
Malheur County – Malheur Mainstem and Tributaries



Baker County – Between Phillips Reservoir and Baker City



Grande Ronde Valley Low Elevation Snowpack: February 7, 2017



- Snow Varied from 3"-5" SWE near Elgin in north county
- 1"-3" in areas north of La Grande
- Light and Patchy from La Grande to Union

Legend

Snow Survey Map Completed 2/8/17

- **Snow Varied from 4"-7" SWE in tributaries of Malheur River west of Ontario**

Bonita RD-ELEV 3970 21" snow, SWE 5.9"

Cottonwood MTN-ELEV 2773 24" snow, SWE 7.0"

Main Boyd Canal-ELEV 2550 24" snow, SWE 7.0"

Bully Creek Dam-ELEV 2551 Snow 20", SWE 5.0"

Vale Cemetery-ELEV 2306, 14.9" snow, 5.0" SWE

NRCS Office-ELEV 2175 16.7" snow, 5.3" SWE

Bench Rd-ELEV 2264 17.2" snow, 4.3" SWE

Vale

Harper Pass-ELEV 2924 19.7" snow, SWE 5.0"

HWY 20-ELEV 2605 15.2" snow, SWE 4.0"

HWY 20-ELEV 2807 snow 9.5", SWE 3.0"

Google earth

© 2016 Google



20 mi

Snow Survey 2/9/17

NRCS Baker City- ELEV3415, 12.5" snow, SWE 3.7"

Baker City

Sumpter

410

McEwen

Hudspeth LN- ELEV-4075, 17.5" snow, SWE 6.3"

Union Creek- ELEV 4191, 11.5" snow, SWE 4.3"

Bowen Valley-ELEV 3638, 7.0" Snow, SWE 3.5"

- **Snow Varied from 3"-6" SWE south and west of Baker City adjacent to Cornet-Windy Ridge Fire**

HWY245- ELEV 3771, 5.0" snow, SWE 2.0"

Google earth

© 2016 Google

7 mi



North Fork John Day River near Monument – 02/05/2017



North Fork John Day River near Monument – 02/06/2017



Outside Vale – 02/08/2017



Geiser Grand Hotel – Baker City – 02/06/2017



Thank you!

Questions?

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USDA Oregon Technical Advisory Committee

February 16, 2017

NRCS hydrologists sample low elevation snow in the Owyhee Basin where mountain snowpack has already surpassed its normal annual peak.



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